HP ProLiant SL170z G6 Server

Software Configuration Guide

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System BIOS configuration

This chapter describes the basic functions of the BIOS.

System BIOS overview

A Basic Input/Output System, or BIOS, is a set of programs permanently stored in an EEPROM chip (U21) located on the system board. These programs serve as an interface between the server's hardware components and its operating system. This ProLiant server features a ROM BIOS-based diagnostic tool that monitors system activity and performs constant hardware testing to ensure proper system operation.

BIOS software

The BIOS software serves three functions:

- Configure the system settings via the BIOS Setup Utility

  Using the Setup Utility, you can install, configure, and optimize the hardware devices on your system (such as CPU, memory, and hard drives).
- Initialize hardware at boot via POST routines

  At power-on or reset, the software performs Power-On Self-Test (POST) routines to test system resources and run the operating system.
- Perform run-time routines

  Using the software, perform basic hardware routines that can be called from DOS and Windows applications.

BIOS Setup Utility

NOTE: For ease of reading, the BIOS Setup Utility will be referred to as "Setup" or "Setup Utility" in this guide. Also, the screenshots used in this guide display default system values. These values may not be the same as those in your server.

The BIOS Setup Utility is a hardware configuration program built into the server BIOS. Because most systems are already properly configured and optimized, there is normally no need to run this utility.

You need to run this utility under the following conditions:

- When changing the system configuration, including:
  - Setting the system time and date
  - Configuring the hard drives
  - Specifying the boot device sequence
  - Configuring the power management modes
  - Setting up system passwords or making other changes to the security setup
- When a configuration error is detected by the system and you are prompted by a "Run Setup" message to make changes to the BIOS settings.

NOTE: If you repeatedly receive "Run Setup" messages, the battery located on the system board (XBAT1) may be defective. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

The Setup Utility loads the configuration values in a battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM, which allows configuration data to be retained when power is turned off. The values take effect when the system is booted. POST uses these values to configure the hardware. If the values and the actual hardware do not agree, POST generates an error message. You must run the Setup Utility to change the BIOS settings from the default or current configuration.

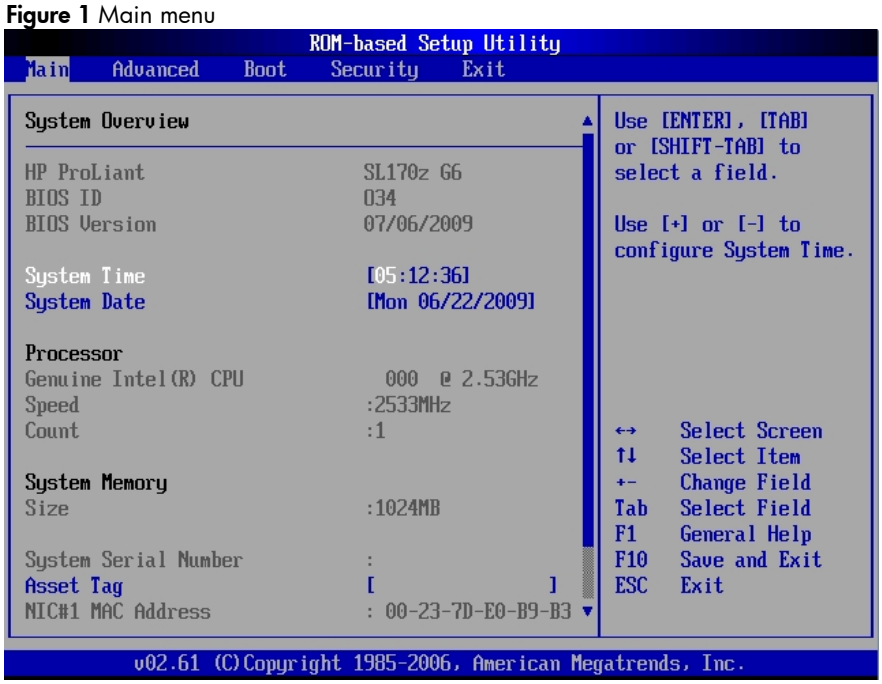
Accessing the Setup Utility

1. Turn on the monitor and the server.

   If the server is already turned on, save your data and exit all open applications, then restart the server.

2. During POST, press **F10**. If you fail to press **F10** before POST is completed, you need to restart the server and repeat this step. The first page displayed is the Main menu. Use the left (←) and right (→) arrow keys to move between selections on the menu bar.

Figure 1 Main menu



NOTE: System Serial Number and Asset Tag are not updated even when CMOS defaults are loaded or CMOS is cleared.

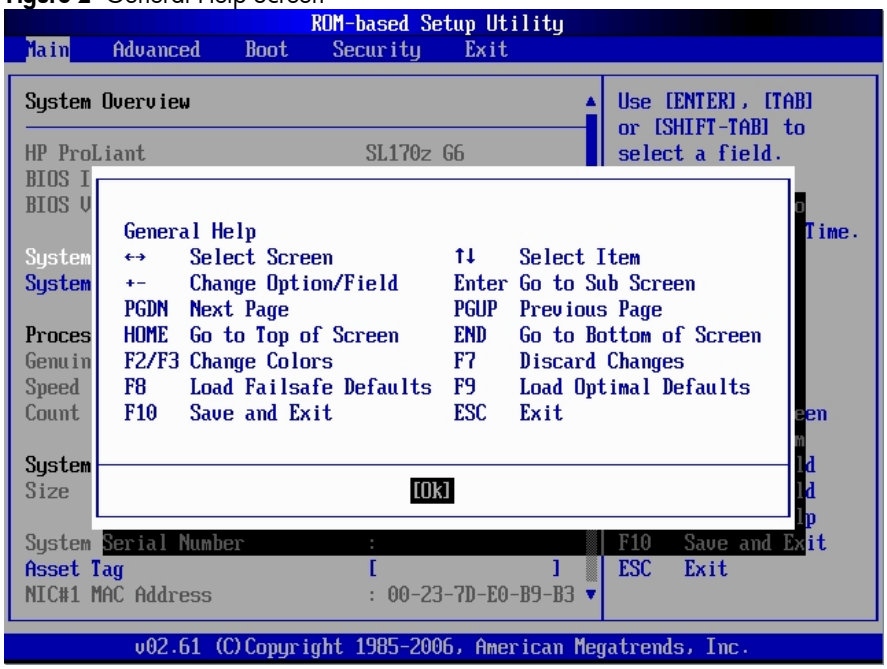
Navigating through the Setup Utility

Use the keys listed in the legend bar on the bottom of the Setup screen to access the various menu and submenu screens of the Setup Utility. Figure 1in the previous section shows the legend bar at the bottom of the Main menu. Table 1 lists these legend keys and their respective functions.

Table 1 Setup Utility navigation keys

Key	Function
← and →	Move between selections on the menu bar.
↑ and ↓	Move the cursor to the field you want. The currently selected field is highlighted. The right side of each menu screen displays the **Item Specific Help** panel. This panel displays the help text for the selected field. It updates as you move the cursor to each field.
<+>, <–>	Select a value for the currently selected field if it is user-configurable. Press the (+) or (-) keys repeatedly to scroll through each value one at a time, or press the Enter key to choose from a pop-up menu that displays all possible values at once. A parameter that is enclosed in square brackets [ ] is user-configurable. Grayed-out parameters are not user-configurable for one of the following reasons: • The field value is auto-configured or auto-detected. • The field value is informational only. • The field is password-protected.
Enter	Select a field value or display a submenu screen.
Tab	Use [ENTER], [TAB] or [SHIFT-TAB] to select a field
Esc	When you press this key: • On a primary menu screen, the **Exit** menu displays. • On a submenu screen, the previous screen displays. • On a pop-up menu, closes the pop-up without making a selection.
F1	Displays the General Help window. See **Figure 2.** The General Help window describes other Setup navigation keys that are not displayed on the legend bar.
F10	Saves all changes to settings and closes the Setup Utility.

Figure 2 General Help Screen

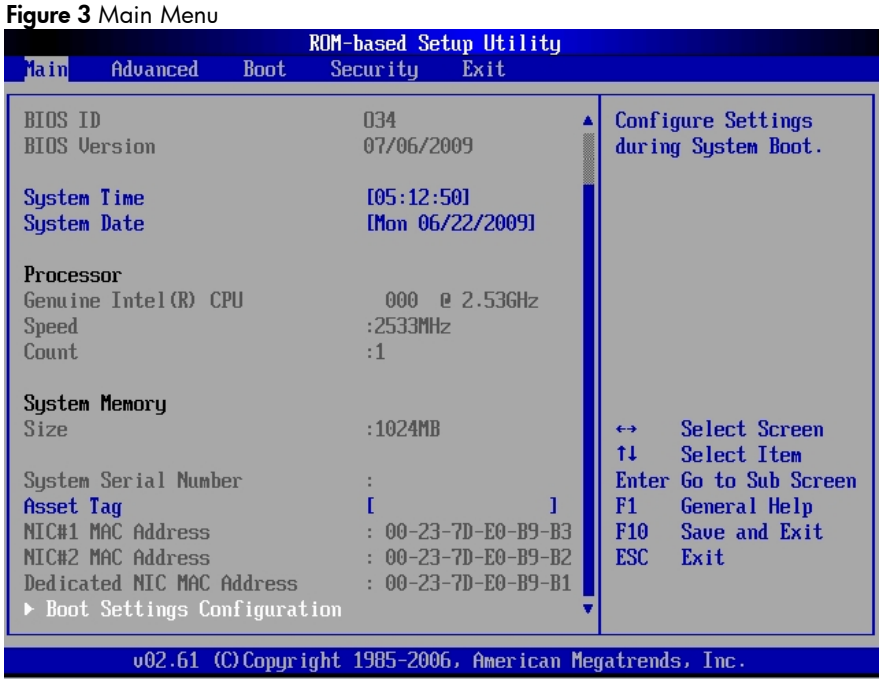


Setup Utility menus

The Setup Utility menu bar displays the five primary menu selections. For detailed information and screenshots of these Setup menus and their related submenus, refer to the following sections.

Main Menu

Figure 3 Main Menu



NOTE: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30, P.M. as 17:30:00. If you unplug the battery, setup time values will be 00:00:00.

Table 2 Main menu fields

Field	Description
System Overview	Displays the system ROM Version, the date when the Setup utility was created and identification number.
Processor	Displays the CPU version, speed and count.
System Memory	Displays the amount of system memory detected during POST.
System Serial Number	Displays the server serial number. The serial number is indicated on the serial number label pull tab on the front panel.
Asset Tag	Enter the server asset tag.
System Time	Adjusts the system time.
System Date	Adjusts the system date.
Boot Settings Configuration	Sets which options to run during system boot up. Press **Enter** to access the related submenu. For details on the submenu options, see the "Boot Settings Configuration submenu" section.

Boot Settings Configuration submenu

Figure 4 Boot Settings Configuration submenu

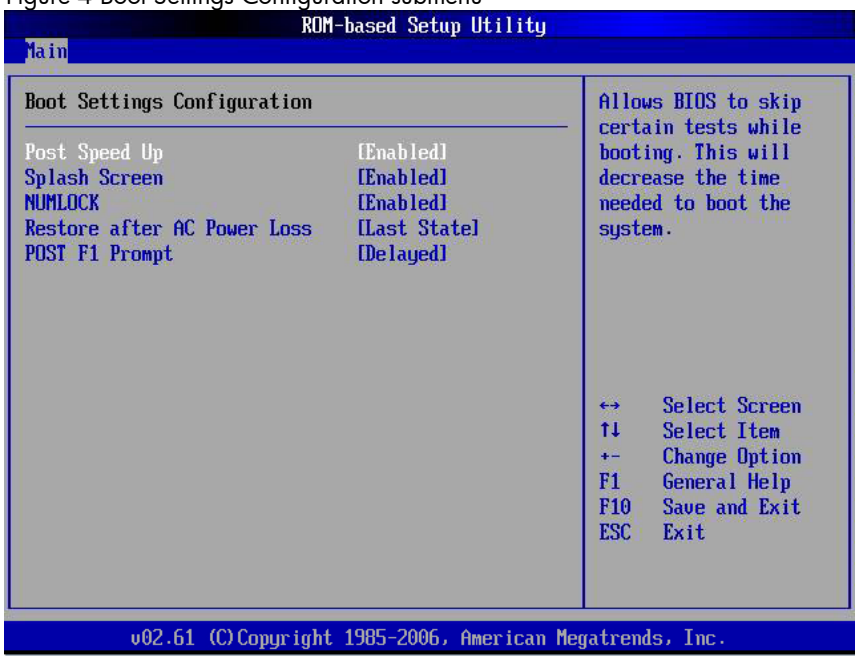


Table 3 Boot Settings Configuration submenu fields

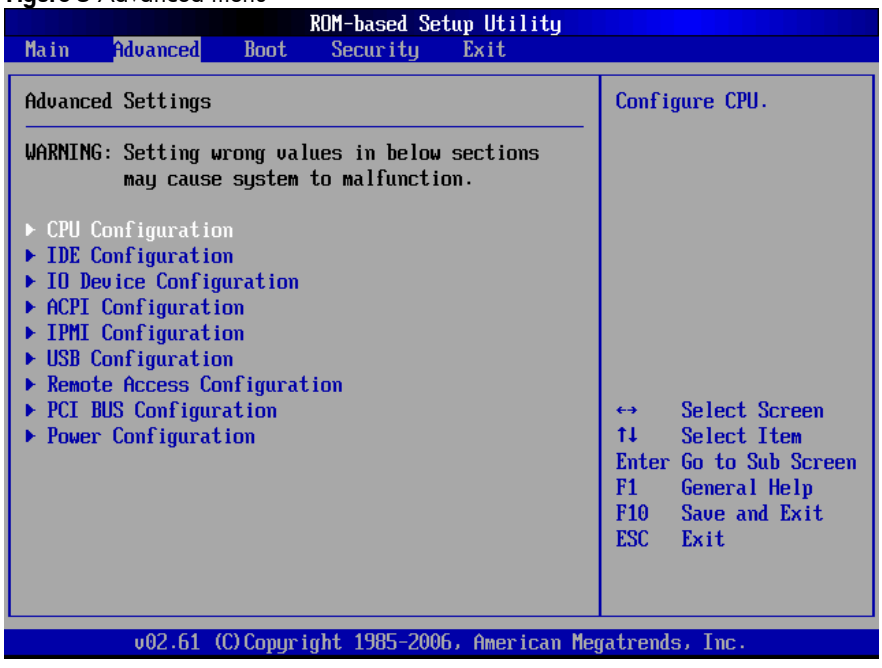
Field	Description	Options
Post Speed Up	Set this value to not allow display hardware summary screen before booting the OS. This is the default setting.	Enabled
	Set this value to allow display hardware summary screen before booting the OS.	Disabled
Splash Screen	Display HP Splash Screen during POST. It is the default setting.	Enabled

Table 3 Boot Settings Configuration submenu fields

Field	Description	Options
	Do not display any splash screen during POST. For HP OEM business.	Disabled
NUMLOCK	Set this value to allow the Number Lock on the keyboard to be enabled automatically when the computer system is boot up. This allows the immediate use of 10-keys numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard Will be lit. This is the default setting.	Enabled
	This option does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard will light up when the Number Lock is engaged.	Disabled
Restore after AC Power Loss	Set this value to restore previous power state before loss occurred. The setting default value is Last State.	Last State
	Set this value to always boot when AC power is restored.	Power on
	Set this value to keep power off until the power button is pressed.	Power Off
POST F1 Prompt	Set this value to allow wait up to 15 seconds for press F1. The setting default value is Delayed.	Delayed
	Set this value to allow waiting indefinitely for press F1.	Enabled
	Set this value. Do not wait for F1. Continue booting.	Disabled

Advanced menu

Figure 5 Advanced menu



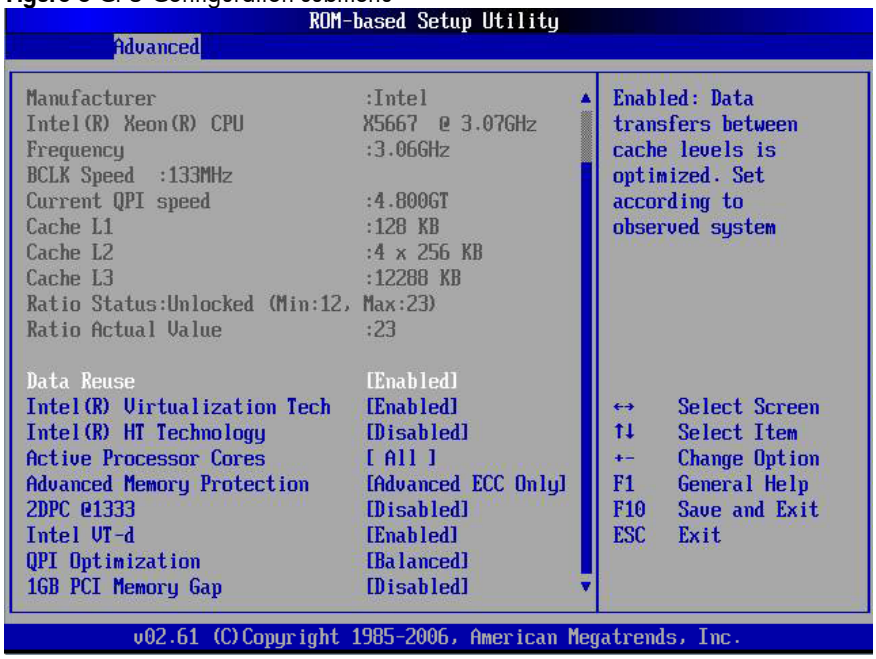
NOTE: The CPU Configuration setup screen varies depending on the installed processor.

Table 4 Advanced menu fields

Field	Description
CPU Configuration	You can use this screen to select options for the CPU Configuration Settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages.
IDE Configuration	You can use this screen to select options for the IDE Configuration Settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages.
IO Device Configuration	You can use this screen to select options for the IO device configuration settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages.
ACPI Configuration	Use this screen to select options for the ACPI Configuration settings.
IPMI Configuration	Select this option and press <Enter> to access the submenu. You can use the submenu to view the contents of IPMI .A delay may be noticed when selecting IPMI. This is due to the retrieval of sensor data .In the submenu, use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus>keys to change the value of the selected option.
USB Configuration	These items control various USB devices. From the USB configuration screen, press <Enter> to access the submenu for the USB BIOS Support. Use the up and down <Arrow> keys to select an item. Use the <plus>and <minus> keys to change the value of the selected option. The settings are described on the following pages.
Remote Access Configuration	You can select console redirection in the left frame of the screen to go to the sub menu for that item. You can display a console redirection by highlighting it using the <Arrow> keys .Console redirection Setup options are described in this section. The settings are described on the following pages.
PCI BUS Configuration	You can use this screen to select options for PCI Express Devices. For Gen 1, the data transfer rate for PCI Express Devices is 2.5 GHz and for Gen 2 the data transfer rate for PCI Express Devices is 5 GHz.
Power Configuration	You can use this screen to select options for the Power Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages. Please note in order to change each individual option the user must select custom.

CPU Configuration submenu

Figure 6 CPU Configuration submenu



NOTE: Data Reuse option is for Intel®Xeon® 5600 Series Processors only. It will not display when Intel® Xeon® 5500 Series Processors are installed.

Table 5 CPU Configuration submenu fields

Field	Description	Options
Data Reuse	Data transfers between cache levels are optimized. Set according to observed system. It is the default value.	Enabled
	Data transfers between cache levels are not optimized.	Disabled
Intel(R) Virtualization Tec	A VMM can utilize the additional HW Caps. A full reset is required to change the setting. The setting default value is enabled.	Enabled
	A VMM can not utilize the additional HW Caps.	Disabled
Intel(R) HT Technology (If processor supports Hyper-Threading, this option will appear)	Enabled for Windows XP and Linux4, OS optimized for Hyper Threading Technology. It is the default value.	Enabled
	Disabled for other OS, OS not optimized for Hyper-Threading Technology.	Disabled
Active Processor Cores	Enabled all cores of the processor.	All
	Enabled half of the processor cores.	Half
	Enabled only one core of the processor.	One
Advanced Memory Protection	Provides the greatest memory capacity for a given DIMM size, while providing up to 4-bit error correction. This mode is the default option for this server. Always enabled for all modes.	Advanced ECC Only

Table 5 CPU Configuration submenu fields

Field	Description	Options
	Provides maximum protection against failed DIMMs. Uncorrectable errors in one channel are corrected by the mirror channel.	Mirrored Memory
	Lockstep between channel 0 and 1. Provides enhanced protection while making all installed memory available to the operating system. The server can continue to function if a single- or multi-bit memory failure within a single DRAM device occurs.	Lockstep Mode
2DPC @1333	The system will operate at a maximum of 1066MHz when 2 DIMMs are installed on any memory channel. It is default setting.	Disable
	Allow configuring the system to run DIMMs (1Rank or 2Ranks) at 1333MHz when up to 2 DIMMs are installed on a memory channel.	Enable
Intel VT-d	Disabled the Intel Processors feature which called Virtualization Technology for Directed I/O.	Disabled
	Enabled the Intel Processors feature which called Virtualization Technology for Directed I/O. It is the default value.	Enabled
QPI Optimization	RTID allocation is set to 24-16-24. This is default value.	Balanced
	RTID allocation is set to 32-8-24.	Optimized for Memory
1GB PCI Memory Gap	Allocated 1GB of space (3GB – 4GB) for PCI mapped memory. It is the default setting.	Enabled
	Not allocated 1GB of space (3GB – 4GB) for PCI mapped memory.	Disabled

IDE Configuration submenu

Figure 7 IDE Configuration submenu

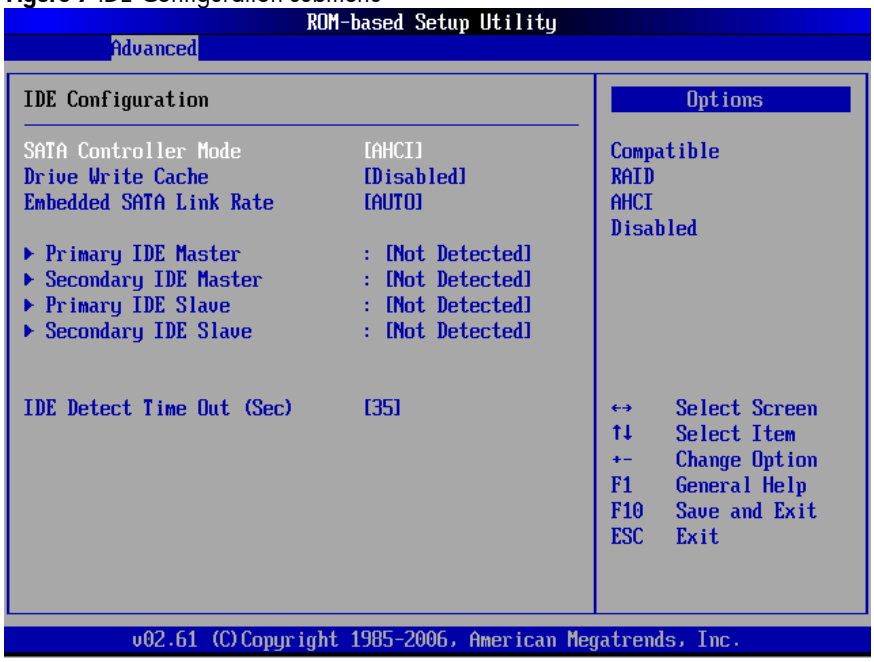


Table 6 IDE Configuration submenu fields

Field	Description	Options
SATA Controller Mode	Legacy Native mode, supports up to 4 drivers.	Compatible
	Only available on systems with an embedded software RAID option ROM.	RAID
	This is the DEFAULT if NCQ Mode requires that AHCI also be Enabled. Otherwise, legacy SATA Native Mode is the DEFAULT as previously specified. This is the default value	AHCI
	SATA controller is Disabled and does not appear in the standard boot order list..	Disabled
Drive Write Cache	Drive Write Cache feature disabled on all dumb SATA drives. This avoids the possibility of data loss due to a power failure. The default setting is Disabled.	Disabled
	Drive Write Cache feature on all dumb SATA drives to be enabled System BIOS or SATA option ROM during POST. This improves performance, but at a risk of data loss on a power failure.	Enabled
IDE Detect Time Out	This value is the best setting to use if the onboard IDE controllers are set to a specific IDE disk drive in the BIOS.	0
	Set this value to stop the setup from searching the IDE bus for IDE disk drives in 5 seconds.	5
	Set this value to stop the setup from searching the IDE bus for IDE disk drives in 10 seconds.	10
	Set this value to stop the setup from searching the IDE bus for IDE disk drives in 15 seconds.	15

Table 6 IDE Configuration submenu fields

Field	Description	Options
	Set this value to stop the setup from searching the IDE bus for IDE disk drives in 20 seconds.	20
	Set this value to stop the setup from searching the IDE bus for IDE disk drives in 25 seconds.	25
	Set this value to stop the setup from searching the IDE bus for IDE disk drives in 30 seconds.	30
	35 is the default value. It is the recommended setting when all IDE connectors are set to auto in the setup setting.	35

IO Device Configuration submenu

Figure 8 IO Device Configuration submenu

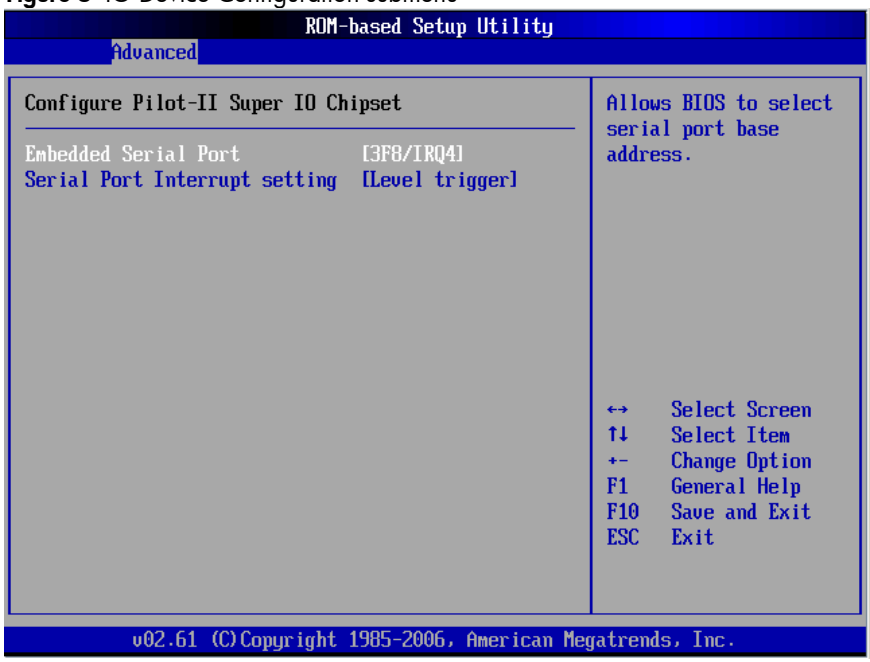


Table 7 IO Device Configuration submenu fields

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable.
3F8/IRQ4	Set this value to allow the serial port to use 3F8 as its I/O port address and IRQ 4 for the interrupt address. This is the default setting. The majority of serial port 1 or COM1 ports on computer systems use IRQ4 and I/O Port 3F8 as the standard setting. The most common serial device connected to this port is a mouse. If the system will not use a serial device, it is best to set this port to Disabled.
3E8/IRQ4	Set this value to allow the serial port to use 3E8 as its I/O port address and IRQ 4 for the interrupt address. If the system will not use a serial device, it is best to set this port to Disabled.

Table 7 IO Device Configuration submenu fields

Option	Description
2E8/IRQ3	Set this value to allow the serial port to use 2E8 as its I/O port address and IRQ 3 for the interrupt address. If the system will not use a serial device, it is best to set this port to Disabled.
2F8/IRQ3	Set this value to allow the serial port to use 2F8 as its I/O port address and IRQ 3 for the interrupt address. If the system will not use a serial device, it is best to set this port to Disabled.
Serial Port Interrupt setting	Level triggered interrupt
	Edge triggered interrupt

ACPI Configuration submenu

Figure 9 ACPI Configuration submenu (1)

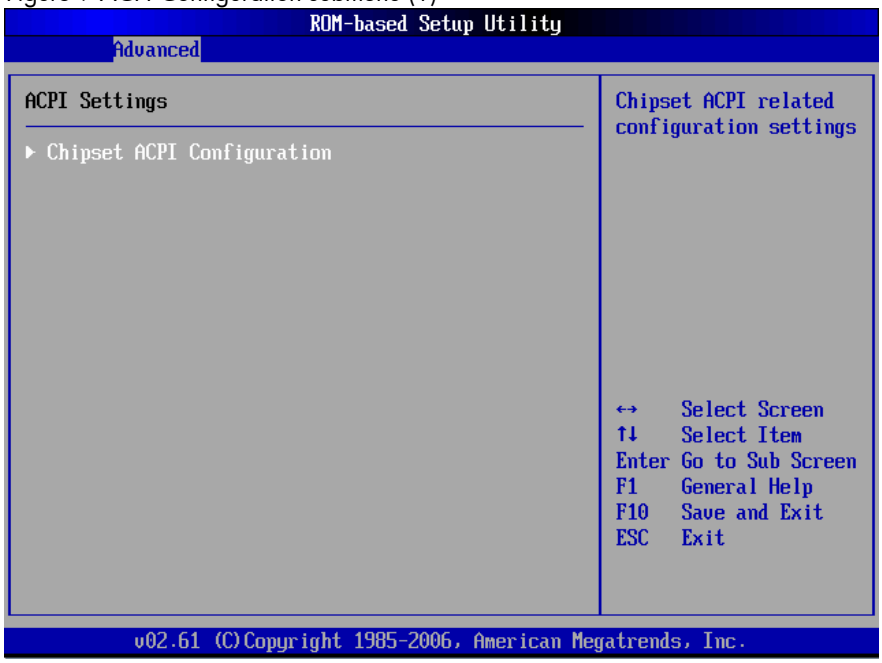


Table 8 ACPI Settings submenu fields

Field	Description
Chipset ACPI Configuration	This option specifies High Precision Event Timer.

Figure 10 ACPI Configuration submenu (2)

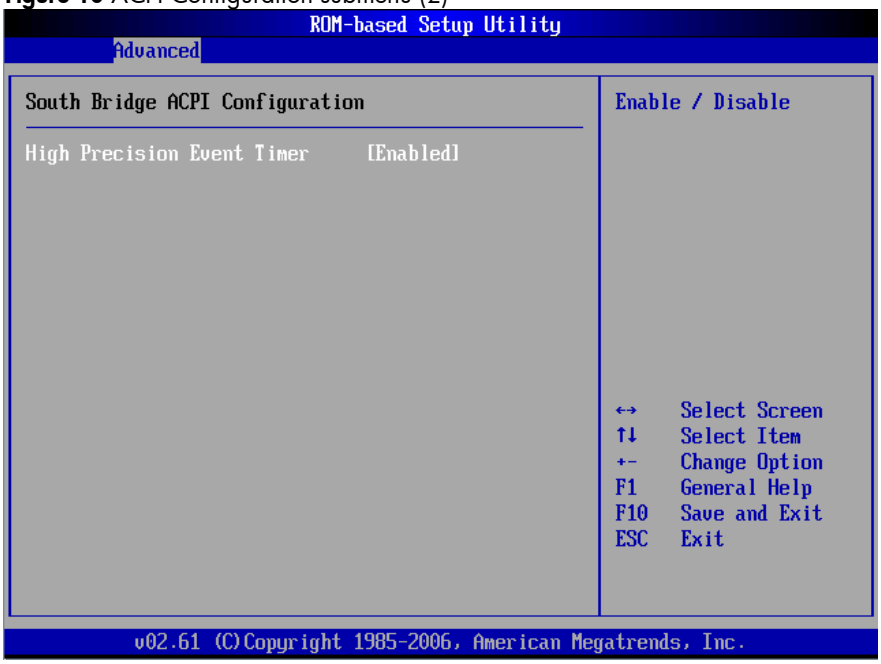


Table 9 South Bridge ACPI Configuration submenu fields

Field	Description	Options
High Precision Event Timer	Enable High Precision Event Timer. This is the default setting.	Enabled
	Disable High Precision Event Timer.	Disabled

IPMI Configuration submenu

Figure 11 IPMI Configuration submenu

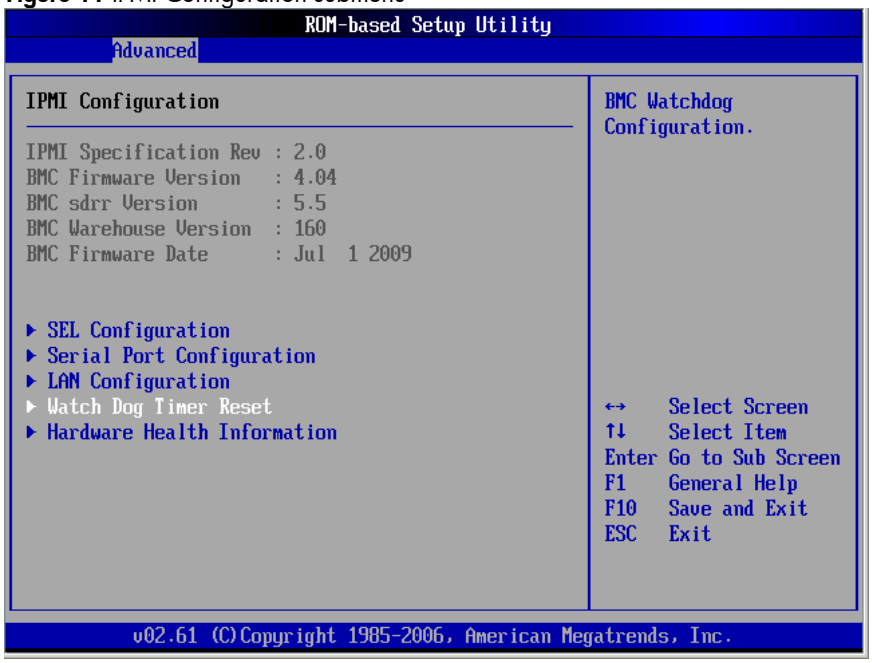


Table 10 IPMI Configuration submenu fields

Field	Description
SEL Configuration	Select SEL Configuration in the left frame of the screen to go to the submenu for that item. Then you can press Enter to enter its submenu. You can display a submenu about SEL Configuration option by highlighting it using the <Arrow> keys.
Serial Port Configuration	Select Serial Port Configuration in the left frame of the screen to go to the submenu for that item. Then you can press Enter to enter its submenu. You can display a submenu about Serial Port Configuration option by highlighting it using the <Arrow> keys.
LAN Configuration	Select LAN Configuration in the left frame of the screen to go to the submenu for that item. You can display a submenu about LAN options by highlighting it using the<Arrow> keys. Set LAN Setup options are described in this section. The Set LAN BIOS Setup screen is shown below (When you have a LO100 Device, this item will display).
Watch Dog Timer Reset	Select "Watch Dog Timer Reset "in the left frame of the screen and press<enter> to go to the submenu for that item. That will display POST Watchdog Timer Action, BMC Watch Dog Time Out; you can change the default value.
Hardware Health Information	Select Hardware Health Information in the left frame of the screen and press<enter> to go to the submenu for that item. That will display CPU temperature, ambient temperature, CPU fan speed, system fan speed, chassis fan speed. These items cannot be changed by the user. It accords with the sense of the case. If there is LV CPU and no card in slot1, then System Fan 6 Rotor 1 and System Fan 6 Rotor 2 no display.

Figure 12 SEL Configuration submenu (1)

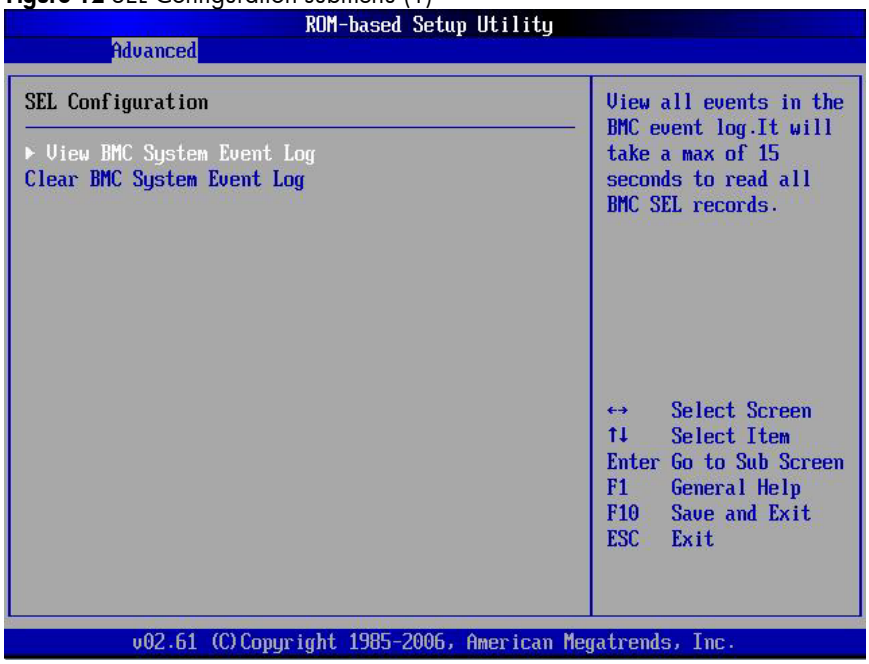


Figure 13 SEL Configuration submenu (2)

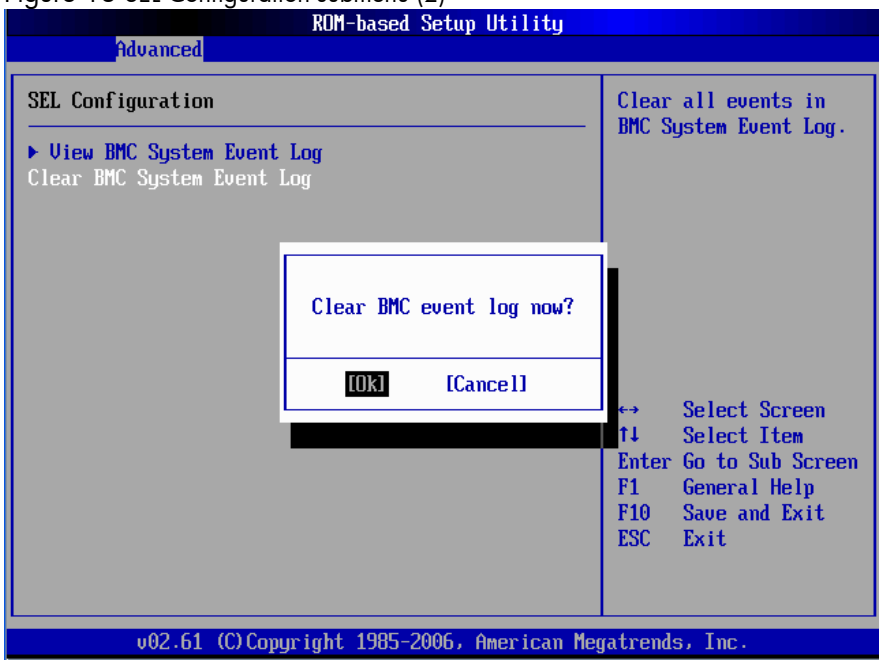


Table 11 SEL Configuration submenu fields

Field	Description
View BMC System Event Log	The option specifies BMC system event log. Select this option and press <Enter> to access the submenu to view the contents of System Event log.
Clear BMC System Event Log	The option specifies clear system event log. If the BMC Event log is full, you can choose this item to clear out the BMC Event log. If this option is selected, a confirmation prompt will appear before the log is cleared.

Figure 14 Serial Port Configuration submenu

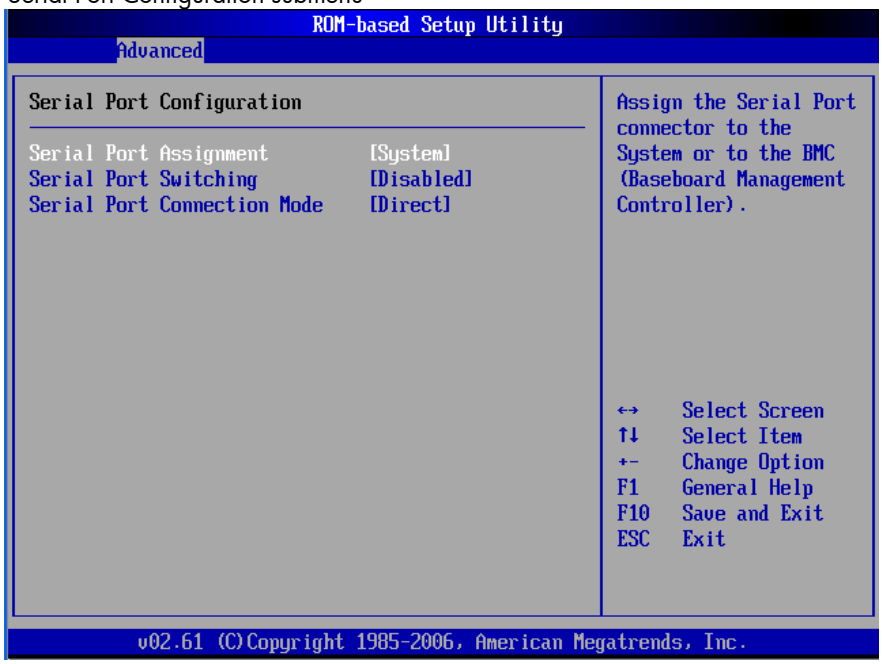


Table 12 Serial Port Configuration submenu fields

Field	Description	Options
Serial Port Assignment	This setting will assign the serial port connector to the system. The setting default value is System.	System
	This setting will assign the serial port connector to the BMC (Baseboard management controller).	BMC
Serial Port Switching	This setting allows the Serial port switch between system and BMC.	Enabled
	This setting will prevent the Serial port from switching between system and BMC. The setting default value is Disabled.	Disabled
Serial Port Connection Mode	Serial port connection mode is Direct. The setting default value is Direct.	Direct
	Serial port connection mode is Modem.	Modem

Figure 15 LAN Configuration submenu

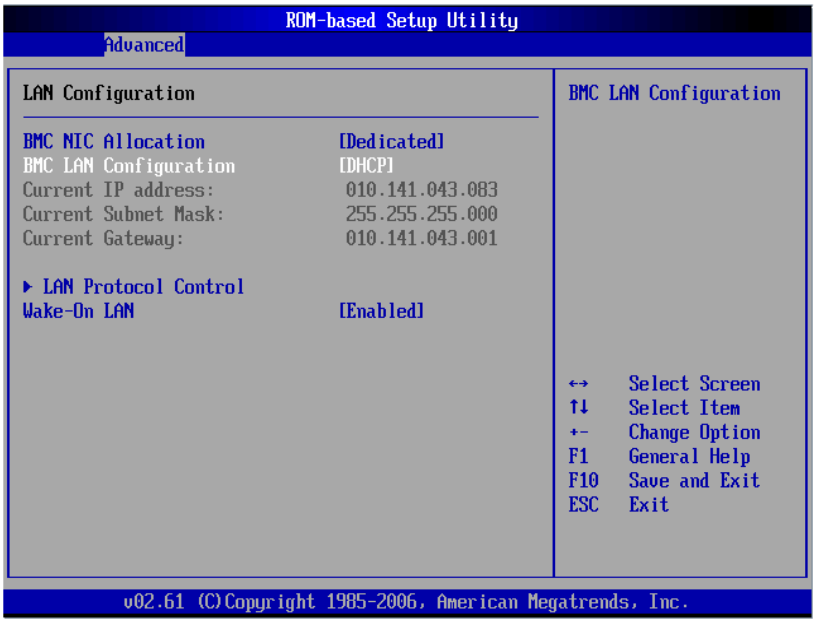


Table 13 LAN Configuration submenu fields

Field	Description	Options
BMC NIC Allocation	Set the value support share NIC mode.	Shared
	Set the value support from BMC NIC allocation.	Dedicated
BMC LAN Configuration	The option specifies DHCP (Dynamic Host Configuration Protocol) IP source. The optimal setting is Static. The setup default is DHCP. If the option selected is DHCP, it displays below.	DHCP Static
Current IP Address	Set this value needs you manual to set the IP source.	
	Set this value allows dynamic get the IP source.	
Current Subnet Mask	The option specifies Current subnet mask, it auto gets the IP subnet mask; you can setup this value when disabled share NIC mode and DHCP IP source.	
Current Gateway	The option specifies Default gateway, it auto gets the IP subnet mask. You can setup this value when disabled share NIC mode and DHCP IP source.	
LAN Protocol Control	Disable HTTP/Telnet/Ping protocol on the BMC.	Disabled
	Enable HTTP/Telnet/Ping protocol on the BMC.	Enabled
Wake-On LAN	Set this value will enable wake on LAN. The setting default value is Enabled.	Enabled
	Set this value will disable wake on LAN.	Disabled

Figure 16 Watchdog Configuration submenu

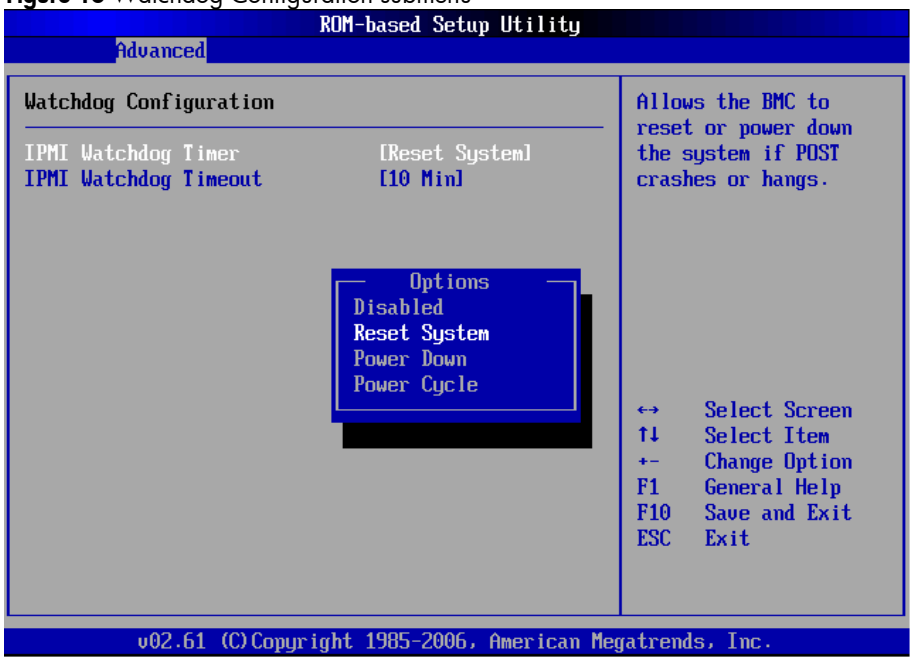


Table 14 Watchdog Configuration submenu fields

Field	Description	Options
IPMI Watchdog Timer	Disabled the items do not allow to crashes or hangs if OS crashes or hangs.	Disabled
	Set this value to allow BMC to reset if the operating system crashes or hangs. This is the default setting.	Reset System
	Set this value to allow BMC to Power Down if the operating system crashes or hangs.	Power Down
	Set this value to allow BMC to Power Cycle if the operating system crashes or hangs.	Power Cycle
IPMI Watchdog Timeout	Sets a10 minute timeout value for BMC to wait before assuming the system has crashed and needs to reset. The setting default value is 10 minutes. This is the default setting.	10 Min
	Sets a 5 minute timeout value for BMC to wait before assuming the system has crashed and needs to reset.	5 Min
	Sets a 15 minute timeout value for BMC to wait before assuming the system has crashed and needs to reset.	15 Min
	Sets a 20 minute timeout value for BMC to wait before assuming the system has crashed and needs to reset.	20 Min
	Sets a 30 minute timeout value for BMC to wait before assuming the system has crashed and needs to reset.	30 Min

Figure 17 Hardware Health Information submenu

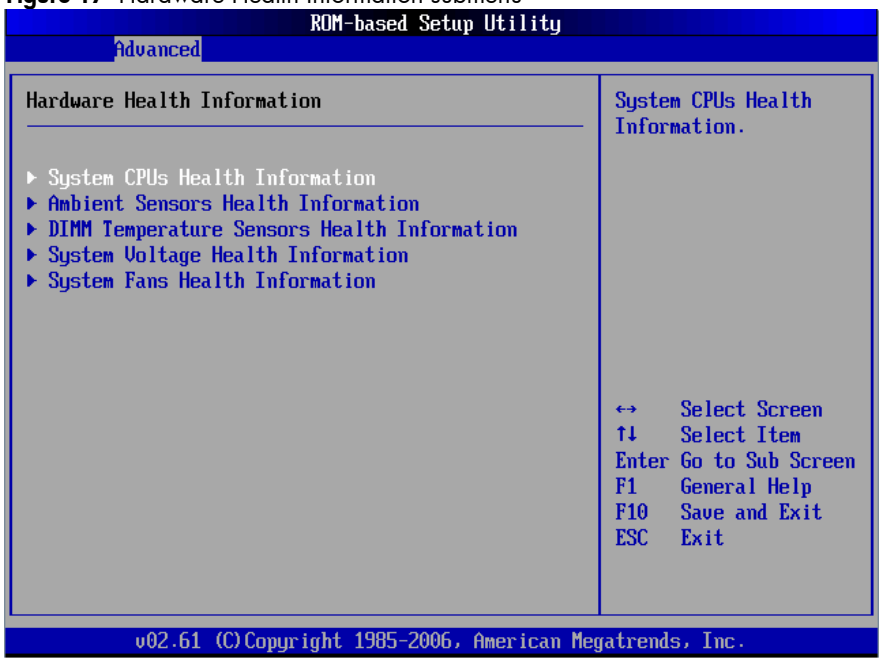


Table 15 Hardware Health Information submenu fields

Field	Description
System CPUs Health Information	Display system CPUs health information.
Ambient Sensors Health Information	Display Ambient Sensors Health Information.
DIMM Temperature Sensors Health Information	Display DIMM Temperature Sensors Health Information.
System Voltage Health Information	Display System Voltage Health Information.
System Fans Health Information	Display System Fans Health Information.

USB Configuration submenu

Figure 18 USB Configuration submenu

NOTE 1: When you install USB storage, USB Mass Device Configuration items are displayed. From this item, you can get some information about the device, some information you can configure it if needed.

Table 16 USB Configuration submenu fields

Field	Description	Options
USB BIOS Support	This setting makes the onboard USB function unavailable during POST.	Disabled
	This setting allows the use of the USB function. This is the default setting.	Enabled
BIOS EHCI Hand-Off	Set this value not to support the EHCI-off.	Disabled
	Set this value to support the EHCI-off, this is default value.	Enabled
USB Ports	Set this value to enable USB ports	Enabled
	Turn off external and internal USB ports. Once set, all the USB ports on M/B invalid, you can use remote KVM or clear CMOS to enable it.	Disabled Phys Ports
	Remove remote KVM and remote Media options.	Disabled Vir Ports
	Turn off both physical and virtual ports. Once set, all the USB ports invalid, you can clear CMOS to enable it.	Disable All Ports

Remote Access Configuration submenu

Figure 19 Remote Access Configuration submenu

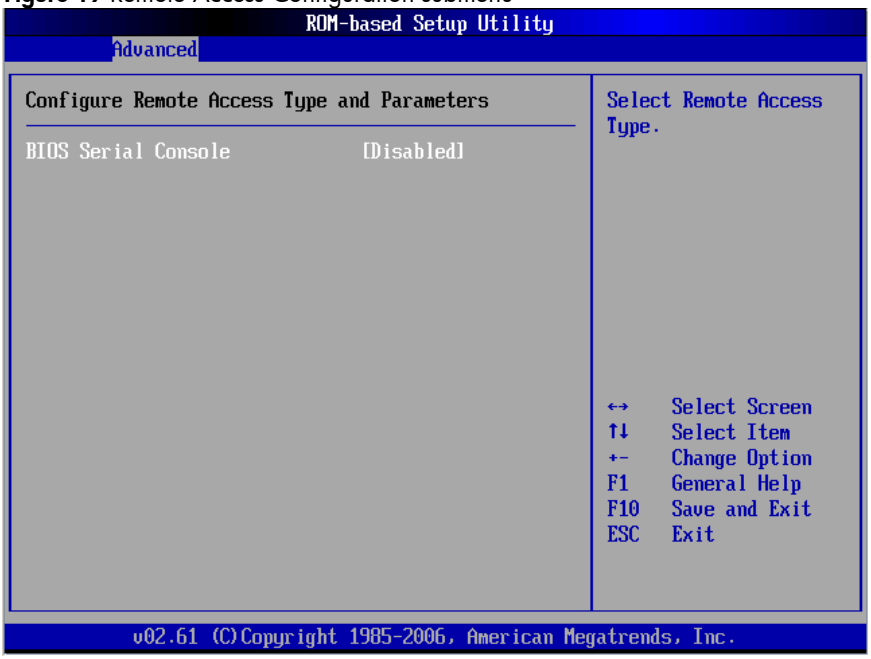


Table 17 Remote Access Configuration submenu fields

Field	Description	Options
BIOS Serial Console	Set this value to allow configuring the serial port.	Enabled
	This value prevent you configure the serial port.	Disabled
Serial Port Mode	Set this value to allow you to select 115200 as the baud rate (transmitted bits per second) of the serial port.	115200 8,n,1
	Set this value to allow you to select 57600 as the baud rate (transmitted bits per second) of the serial port.	57600 8,n,1
	Set this value to allow you to select 19200 as the baud rate (transmitted bits per second) of the serial port.	19200 8,n,1
	Set this value to allow you to select 9600 as the baud rate (transmitted bits per second) of the serial port. This is the default value.	9600 8,n,1
Flow Control	Set this value to not allow Flow control. The default setting is None.	None
	Select this value to make Flow control by Hardware.	Hardware
	Select this value to make Flow control by Software.	Software
Redirection After BIOS POST	Set this value to always active the redirection after post. The default is Always.	Always
	Set this value to turn off the redirection after post.	Disabled
Terminal Type	VT100 console type in the serial port.	VT100
	ANSI console type in the serial port. It is the default value.	ANSI
	VT-UTF8 console type in the serial port.	VT-UTF8

PCI Bus Configuration submenu

Figure 20 PCI Bus Configuration submenu

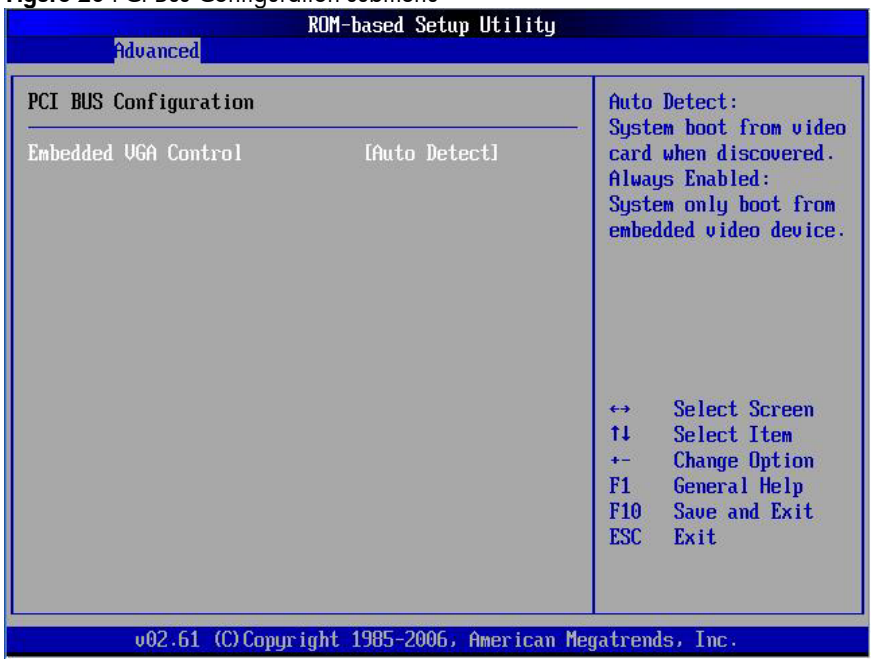


Table 18 PCI Bus Configuration submenu fields

Field	Description	Options
Embedded VGA Control	Embedded VGA Stays ON as Primary Video Controller, regardless of other graphics controllers being present.	Always Enabled
	Disable embedded VGA if add-in graphics controller detected. This is the Default value.	Auto Detect

Power Configuration submenu

Figure 21 Power Configuration submenu

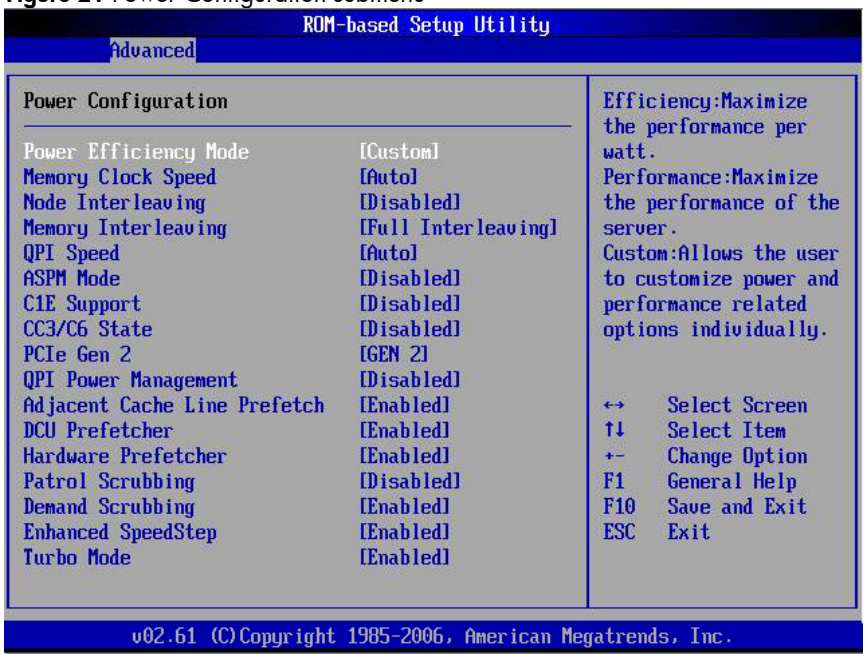


Table 19 Power Configuration submenu fields

Filed	Description	Options
Power Efficiency Mode	BIOS will initialize all power related processor and chipset settings to maximize the performance per Watt. This is the default value.	Efficiency
	BIOS will initialize all power related processor and chipset settings to maximize the performance of the server.	Performance
	The user has modified the configuration of power/performance related settings individually.	Custom
Memory Speed	Detect the current memory speed. This is the default value.	Auto
	Force the current memory speed to DDR-800.	Force DDR-800
	Force the current memory speed to DDR-1066.	Force DDR-1066
	Force the current memory speed to DDR-1333.Use this setting for 2 DIMMs/channel for optimum performance	Force DDR-1333
Node Interleaving	Configure memory controller to non-socket interleaved.	Disabled
	Configure memory controller to socket interleaved mode.	Enabled.
Memory Interleaving	Both Channel and Rank Interleaving. It is the default value.	Full Interleaving
	Channel Interleaving Only.	Channel Only
	Disabled memory Interleaving.	Disabled
QPI Speed	Detect the current QPI speed. It is the default value.	Auto
	Set the current QPI Speed to 4.800GT.	4.800GT
	Set the current QPI Speed to 5.866GT.	5.866GT

Table 19 Power Configuration submenu fields

Filed	Description	Options
	Set the current QPI Speed to 6.400GT.	6.400GT
ASPM Mode	This option would be chosen by the user if there were compatibility issues with their PCIE option cards. It is the default setting.	Disabled
	Allows the PCIE ports to enter L0s and/or L1 states.	Enabled
C1E Support	Enable or disable the "Enabled Halt State" disallowed. when power efficiency mode is performance, value is disabled	Disabled
	This is enabled in order to enable or disabled the "Enabled Halt State". When power efficiency mode is efficiency, value is enabled.	Enabled
CC3/C6 State	Disabled Nehalem C state for CC3/C6. when power efficiency mode is performance, value is disabled	Disabled
	Nehalem C state for CC3/C6, the default value is Enabled. when power efficiency mode is efficiency, value is enabled	Enabled
PCIe Gen 2	All PCI-E devices only run in Gen 1 mode.	Gen 1
	Auto detects Gen 1/Gen 2 cards for best possible performance. PCIe devices that support Gen 2 mode will be configured to run in Gen 2 mode. PCIe devices that only support Gen 1 mode will run in Gen 1 mode. It is the default setting.	Gen 2
QPI Power Management	Disabled L0s and L1. when power efficiency mode is performance, value is disabled	Disabled
	Enable L0s and L1, when power efficiency mode is efficiency, value is enabled	Enabled
Adjacent Cache Line Prefetch	This option provides the best benchmark (performance/Watt) numbers.	Disabled
	For best performance, it is the default setting.	Enabled
Hardware Prefetcher	This option provides the best benchmark (performance/Watt) numbers.	Disabled
	For best performance, it is the default setting.	Enabled
DCU Prefetcher	Predictable data pre-fetched into cache. Set according to observed system performance results. Only for Intel® Xeon® 5600 Series Processor.	Enabled
	Do not predictable data pre-fetched into cache.	Disabled
Patrol Scrubbing	Disable the ECC patrol scrub. It is the default value.	Disabled
	Enable the ECC patrol scrub.	Enabled
Demand Scrubbing	Disable the ECC demand scrub.	Disabled
	Enable the ECC demand scrub, It is the default value.	Enabled
Enhanced SpeedStep	Disable GV3.	Disabled
	Enable GV3, It is the default value.	Enabled

Table 19 Power Configuration submenu fields

Filed	Description	Options
Turbo Mode	Prevent processor cores to run faster than marked frequency in specific condition. When power efficiency mode is efficiency, the value is disabled.	Disabled
	Allows processor cores to run faster than marked frequency in specific condition. When performance mode is performance, the value is enabled.	Enabled
NOTE: Turbo Mode is currently only available on certain high-bin Intel processors. It improves performance with a minor penalty to power efficiency. It requires that Intel Enhanced SpeedStep also be Enabled.		

Boot Menu

Figure 22 Boot Menu

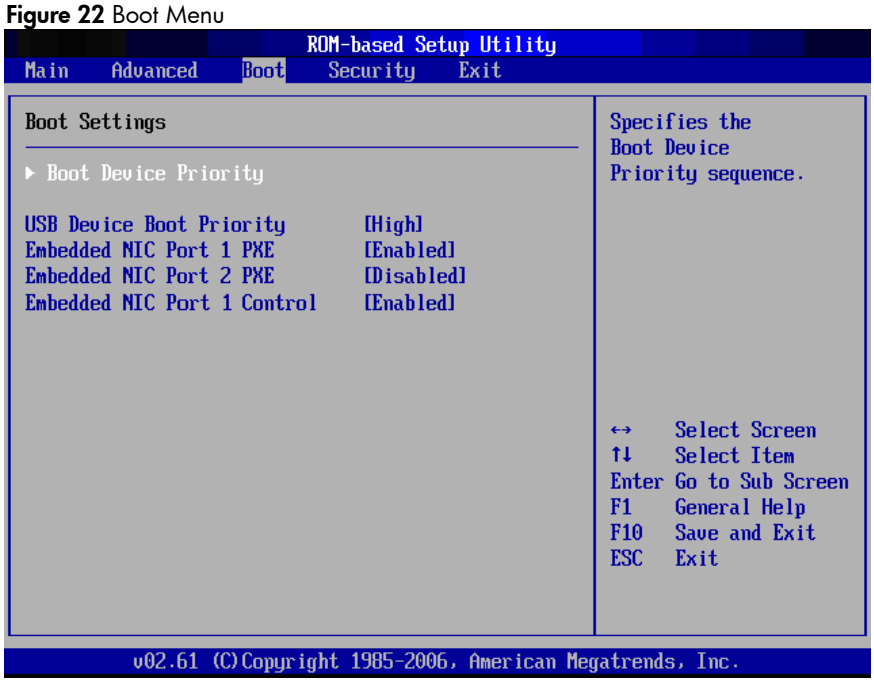


Table 20 Boot menu fields

Filed	Description	Options
USB Device Boot Priority	Newly inserted USB devices from automatically showing up as top priority within their device class in the standard boot order list. The default value is High.	High
	Disallow newly inserted USB devices from automatically showing up as top priority within their device class in the standard boot order list. This is needed so that the user can configure the BIOS to avoid attempting to boot non-bootable USB devices that are left plugged into the server during POST	Low
Embedded NIC Port 1 PXE	Set this value not to allow boot from network.	Disabled
	Set this value to allow boot from network, default.	Enabled

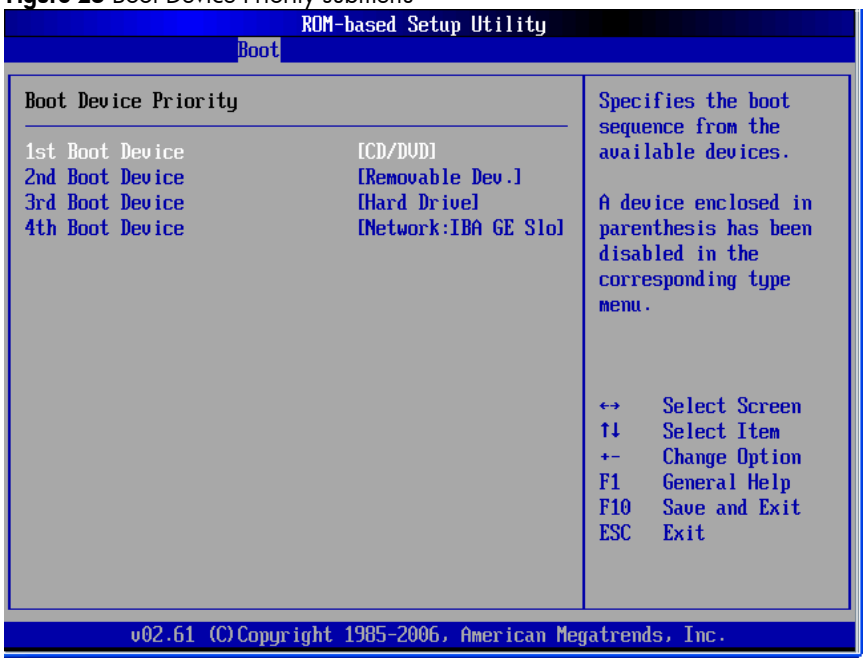
Table 20 Boot menu fields

Filed	Description	Options
Embedded NIC Port 2 PXE	Set this value not to allow boot form network.	Disabled
	Set this value to allow boot from network.	Enabled
Embedded NIC Port 1 Control	Set this value not to allow boot from network.	Disabled
	Set this value to allow boot from network.	Enabled

Boot Device Priority Submenu

To change the boot order, select a boot category type such as Hard disk drives, Removable media or ATAPI CD ROM devices from the boot menu. For example, if the 1st boot device is set to Hard disk drives, then BIOS will try to boot to hard disk drives first.

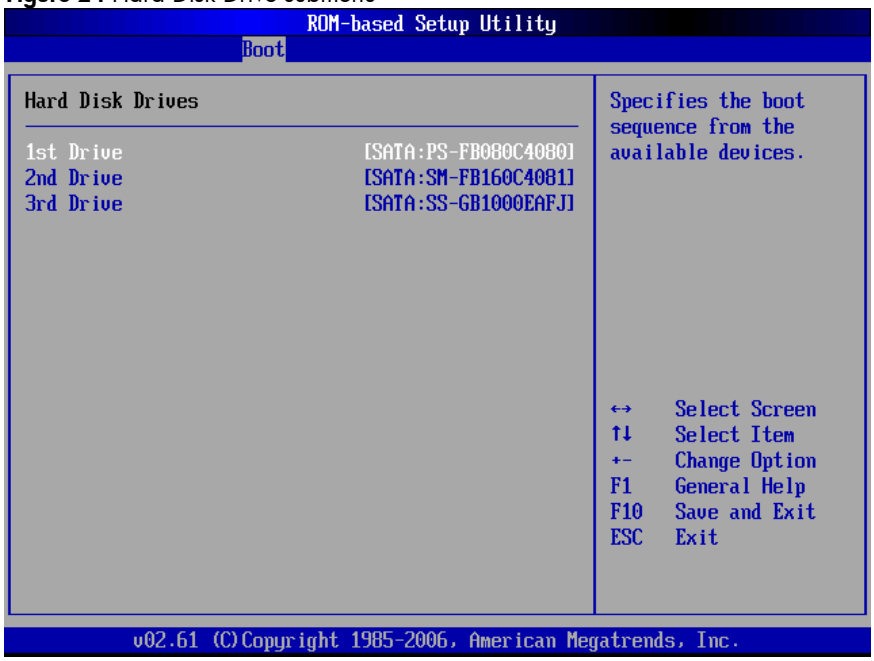
Figure 23 Boot Device Priority submenu



NOTE: When you select a boot category from the boot menu, a list of devices in that category appears.

Hard Disk Drives Submenu

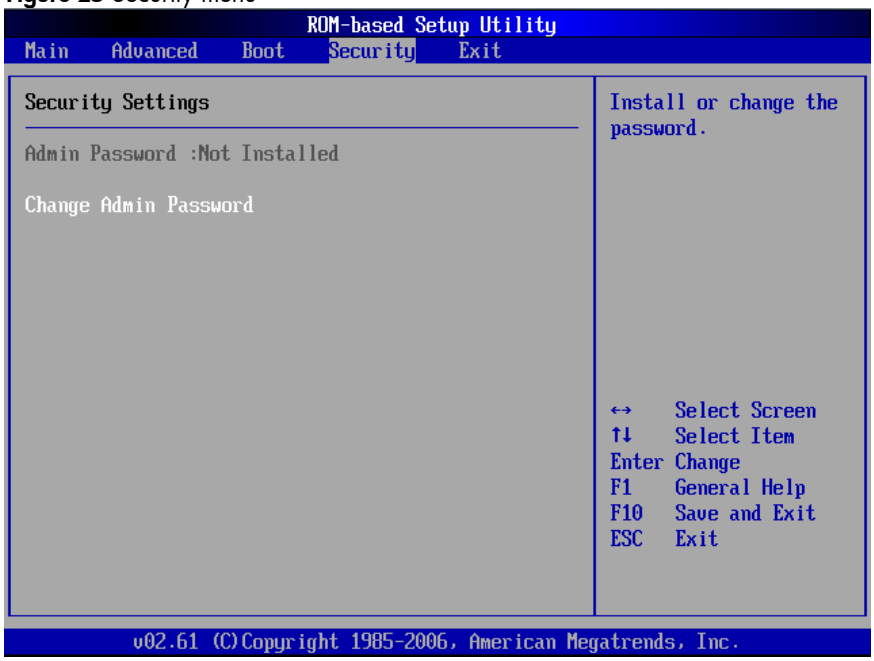
Figure 24 Hard Disk Drive submenu



Security menu

The **Security** menu allows users to set an administrator password. When entered, this password allows the user to access and change all settings in the Setup Utility.

Figure 25 Security menu

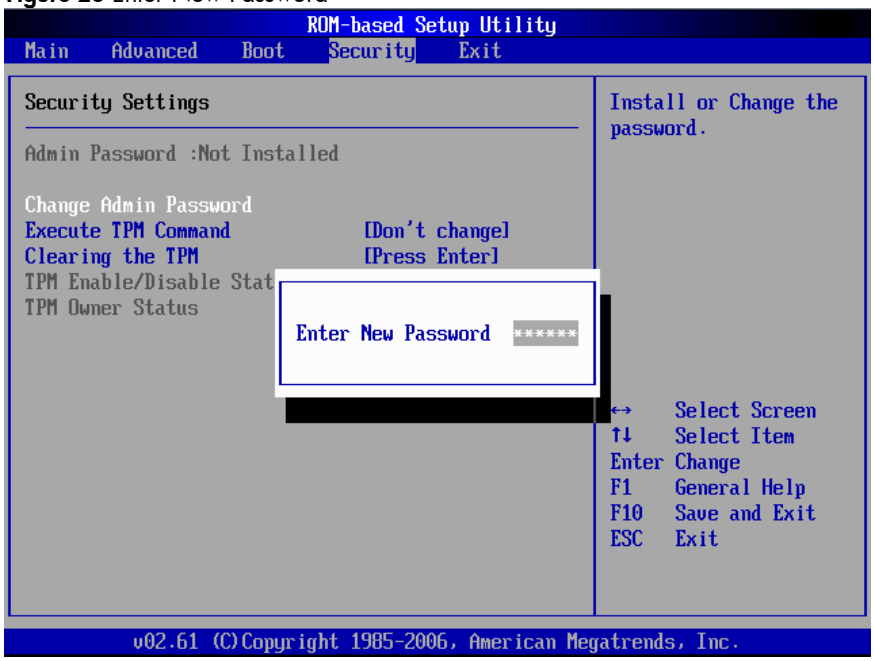


To set an administrator password:

1. Indicates whether a supervisor password has been set, if the password has been installed, installed displays, if not, not installed displays.
2. In the Security menu screen, in the **Change Admin Password** field, press **Enter**.

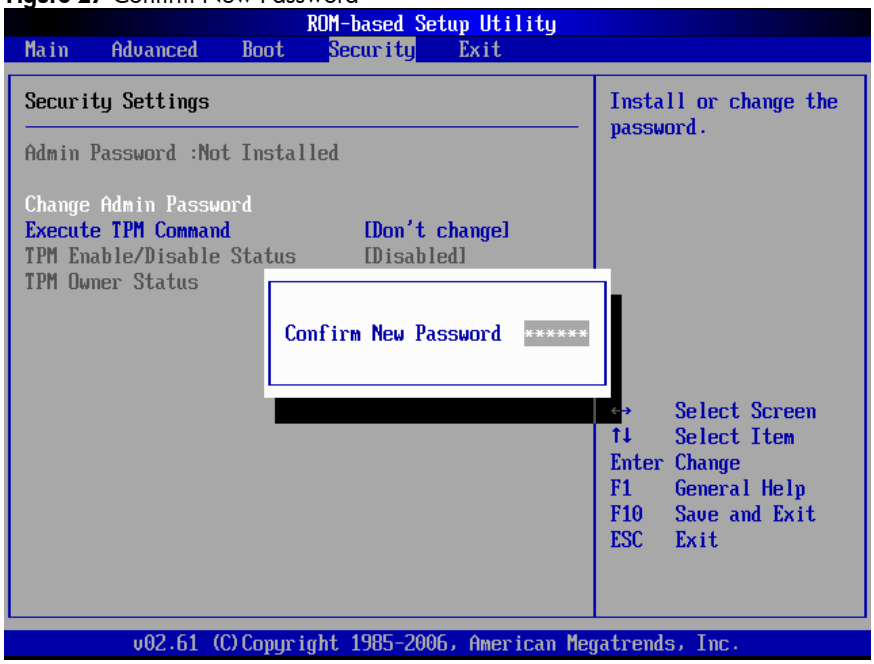
   The **Enter New Password** window displays.

Figure 26 Enter New Password



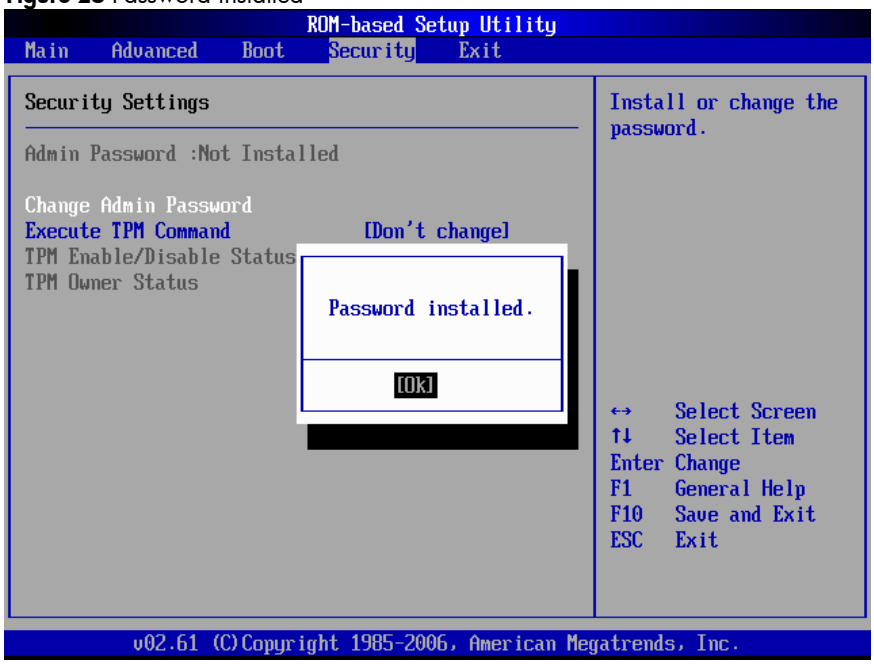
3. Type a new password in the Enter New Password box. The password may consist of up to six alphanumeric characters (A-Z, a-z, 0-9), then press Enter. The Confirm New Password window displays.

Figure 27 Confirm New Password



4. Type the same password in the Confirm New Password box to verify the first entry, and then press Enter. The Password Installed OK is displayed. Press OK to finish.

Figure 28 Password installed



5. Press F10 to save the password and close the Setup Utility.

   Setup automatically changes the administrator Password.

To change the Admin Password:

1. In the Security menu screen, in the Change Admin Password field, press Enter. The Enter New Password displays. Type a new password in the Enter New Password box.
2. Type the same password in the Confirm New Password box to verify the first entry, then press Enter. The Password Installed OK is displayed. Press Enter to finish.

To check the administrator password:

1. In the Security menu screen, select **Password Check**, and then press Enter.
2. Select one of the available options and then press Enter.

Figure 29 Password Check submenu

Table 21 Password Check submenu fields

Option	Description
Setup	Set this value need to check password while invoking the set up utility.
Always	Set this value must check password while invoking setup on each boot.

Exit menu

The **Exit** menu displays several options on how to quit the Setup Utility. Select any of the exit options then press **Enter**.

Figure 30 Exit menu

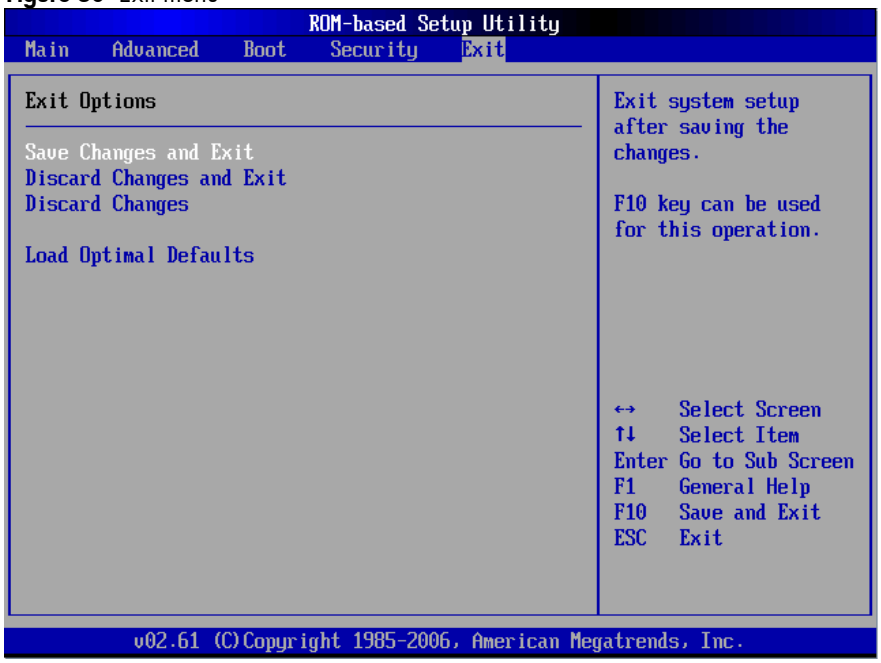


Table 22 Exit menu fields

Option	Description
Save Changes and Exit	Save the changes made and exit the Setup Utility.
Discard Changes and Exit	Discard the changes and exit the setup utility.
Discard Changes	Discard the changes in the utility.
Load Optimal Defaults	Loads the default settings for all BIOS setup fields.

Loading system defaults

If the system fails after you make changes in the Setup menus, reboot the server, enter Setup, and load the system default settings to correct the error. These default settings have been selected to optimize the server's performance. Setup default settings are quite demanding in terms of resource consumption. If you are using low-speed memory chips or other types of low-performance components and you choose to load these settings, the system might not function properly.

To load the system defaults:

1. Reboot the server in a normal manner.
2. During POST, press **F10** to access the Setup Utility.
3. Press **F9** to load the default values.
4. Press **F10** to save the changes and close the Setup Utility.

Power-On Self-Test (POST)

When the server boots up, a series of tests are displayed on the screen. This is referred to as Power-On Self-Test (POST). POST is a series of diagnostic tests that checks firmware and assemblies to ensure that the server is properly functioning. This diagnostic function automatically runs each time the server is powered on.

These diagnostics, which reside in the BIOS ROM, isolate server-related logic failures and indicate the board or component that needs to be replaced, as indicated by the error messages. Most server hardware failures are accurately isolated during POST. The number of tests displayed depends on the configuration of the server.

POST error indicators

When POST detects a system failure, it will display a POST error message.

Recoverable POST Errors

Whenever a non-fatal error occurs during POST, an error message describing the problem appears onscreen. These text messages are displayed in normal video (white text on black background). It shows the details of the error.

In some cases an error message may include recommendations for troubleshooting or require that you press the **Enter** key to display recommendations. Follow the instructions on the screen.

It is recommended that you correct the error before proceeding, even if the server appears to boot successfully. If your system displays one of the messages marked below with an asterisk (*), write down the code and message and contact your HP Customer Support provider.

When no POST error message is displayed but the server stops during POST, listen for beep codes.

Table 23 lists the most common POST error messages with their corresponding troubleshooting recommendation.

Table 23 POST Error Messages

Error code	Error message	Description/corrective action
000h	Timer Error	Indicates an error while programming the count register of channel 2 of the 8254 timer. This may indicate a problem with system hardware. Requires repair of the system board.
003h	CMOS Battery Low	CMOS Battery is low. This message usually indicates that the CMOS battery needs to be replaced. It could also appear when the users intentionally discharge the CMOS battery.
004h	CMOS Settings Wrong	CMOS settings are invalid. This error can be resolved by using F9 to load optimal default in the Setup Utility.
00Ah	KBC BAT Test failed	Bat test on keyboard controller failed
00Eh	A: Drive Error	The A: drive could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure floppy devices in POST
00Fh	B: Drive Error	The B: drive could not be properly initialized by the BIOS. This message is typically displayed when the BIOS is trying to detect and configure floppy devices in POST

Table 23 POST Error Messages

Error code	Error message	Description/corrective action
010h	Floppy Controller Failure	The floppy controller initialized failed, the devices could not use normally
012h	CMOS Date/Time Not Set	The CMOS date and/or time are invalid. This error can be resolved by readjusting the system time in the Setup Utility.
048h	Password check failed	Password is incorrect after retried a few times. Users might need to reset the password.
04Ch	Keyboard/Interface Error	Keyboard controller failed test. This may indicate a problem with system hardware.
05Dh	S.M.A.R.T. Status BAD, Backup and Replace	Hard Disk S.M.A.R.T feature test fail ,indicate a problem with hard disk
05Eh	Password check failed	If user input incorrect password more than three times, then display this error information and continue to boot.
110h	Un-correctable DRAM ECC Error detected at cpuXX/DIMM0X (cpu01/DIMM08)	Detect multi-bit error in the DIMM prompt, press F1 continue to boot
613h	Power supplies mismatch, replace slot#2 with identical Power supply Press F1 to continue booting with one power supply	When two power supplies installed, if their vendor are different, this will appear and system will halt.
604h	System Fan 1 Missing	If system fan1 is not installed or failed, system will announce this message and system will shutdown in minutes.
605h	System Fan 2 Missing	If system fan2 is not installed or failed, system will announce this message and system will shutdown in minutes.
606h	System Fan 3 Missing	If system fan3 is not installed or failed, system will announce this message and system will shutdown in minutes.
607h	System Fan 4 Missing	If system fan4 is not installed or failed, system will announce this message and system will shutdown in minutes.
608h	Fan Solution Not Sufficient! Critical Failure Detected - System Shutting Down in xx seconds!	If one or more fan are missing, this message will appear with 'system fan x missing' together.

Table 23 POST Error Messages

Error code	Error message	Description/corrective action
609h	Temperature Violation Detected! Waiting 5 minutes for system to cool. Press ESC Key to resume booting without waiting for the system to cool. Warning: Pressing ESC is NOT recommended as system may shutdown unexpectedly. Recheck Temperature in xxx seconds!	If system detects one or more temperature sensor over heat.
612h	Power Supply Failure or Power Supply Unplugged	When two powers supply installed, if one of the power cable is not connected or one of the power is failed, this will appear.
611h	System Event Log full	If system can not store any more event log, this will appear at post.
615h	System Fan 1 missing! The cooling solution is not redundant due to a detected fan failure.	If only system fan1 is not installed or failed, system will announce this message and press F1 continue to boot
616h	System Fan 2 missing! The cooling solution is not redundant due to a detected fan failure.	If only system fan2 is not installed or failed, system will announce this message and press F1 continue to boot
617h	System Fan 3 missing! The cooling solution is not redundant due to a detected fan failure.	If only system fan3 is not installed or failed, system will announce this message and press F1 continue to boot
618h	System Fan 4 missing! The cooling solution is not redundant due to a detected fan failure.	If only system fan4 is not installed or failed, system will announce this message and press F1 continue to boot

POST-related troubleshooting

Refer to HP ProLiant SL170z Maintenance and Service Guide for troubleshooting guidelines.

OS installation

Supported OSes

Microsoft Windows Server
Microsoft Windows Server 2008 Hyper V
Red Hat Enterprise Linux (RHEL)
SUSE Linux Enterprise Server (SLES)
Solaris 10 for x86/x64 based Systems
Citrix Essentials for XenServer (Retail)

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/supportos.

OS pre-installation procedure

Perform the two pre-OS installation steps in this section before installing the OS of your choice.

1. Configure the hardware aspect of the server.
2. Update the server BIOS.

Hardware setup

Prepare the server following the instructions in the HP ProLiant SL170z G6 Server Installation Sheet.

It is recommended that you do not install any third party adapter until you verify that the HP equipment is functioning properly and you complete the OS installation.

Your ProLiant server comes with new hard disk drive(s) that do not need specific setup. However, if you install additional used hard disk drives in your new server:

- Note that most OS installations remove all data from the hard disk on which they are installed. If you want to use additional hard disk drives to access existing data in the new server, HP recommends that you install and configure any of these hard drives after completing the OS installation.
- If you want to recycle used hard drives, use a utility such as fdisk to erase all data and partitions from that particular hard drive.

BIOS update

HP recommends that you update the server BIOS with the latest system BIOS version to take advantage of the most recent compatibility fixes. You can download the latest HP ProLiant SL170z G6 server BIOS at www.hp.com.

NOTE: For ease of reading, the HP ProLiant SL170z G6 Server Easy Set-up CD will be simply referred to as the "Easy Set-up CD."

Easy Set-up CD Instruction

HP ProLiant SL170z G6 Server Easy Set-up CD is a set of software that optimizes platform configuration.

1. OS install
   a. Put the EZ set-up CD into CD/DVD ROM, boot from CD/DVD ROM.
   b. Click "Install" button.
   c. Choose OS to install
2. HP Insight Diagnostics Tool Basic Test
   a. Put the tool CD into CD/DVD ROM, boot from CD/DVD ROM.
   b. Run the tool following the instruction on screen.

Server management

Pre- and post-installation procedures

Pre-installation procedures

WARNING: Failure to properly turn off the server before you open the server or before you start removing or installing hardware components may cause serious damage as well as bodily harm.

WARNING: To reduce the risk of personal injury from hot surfaces, allow the chassis and any installed hardware components to cool before touching them.

CAUTION: Follow the ESD precautions listed in Chapter 2 of the *HP ProLiant SL170z G6 Server Maintenance and Service Guide* when handling any hardware component.

1. Turn off the server and all the peripherals connected to it.
2. Disconnect the AC power cord from the power supply cable located on the server rear panel to turn off the service processor and reduce the risk of electrical shock.
3. Remove the top cover from the chassis.
4. Place the top cover in a safe place for reinstallation later.

Post-installation procedures

1. Be sure all components are installed according to the described step-by-step instructions.
2. Check to make sure you have not left loose tools or parts inside the server.
3. Reinstall any expansion boards, riser board assemblies, peripherals, board covers, brackets, and system cables that you have removed.
4. Reinstall the top cover:
   a. Place the cover on the chassis approximately 1.25 cm (0.5 in) toward the rear of the unit, then slide the cover forward into place.
   b. Tighten the captive screw on the rear panel.
5. Connect all external cables and the AC power cord to the system.

   Route the cables properly through the available cable management arrangement.
6. Press the power button on the front panel to turn on the server.

Configuring the BMC

The server includes a BMC for systems management, which you can access through a 10/100 Mbps LAN port for IPMI management. To access the BMC through this LAN port, you must configure the IP address. You can configure the settings for the BMC by using either the Setup Utility or another system (such as a laptop) that is connected to the serial port on the server. The serial port can be controlled by the server or shared between the server and the BMC (the default setting).

To configure the BMC through the Setup Utility:

1. In the Serial Port Configuration submenu under the IPMI Configuration submenu, set the Serial port Assignment field to System or BMC. See the "Serial Port Configuration submenu fields" section for more information.
2. In the LAN Configuration Settings submenu under the IPMI configuration submenu, set the IP address, default gateway, and IP subnet mask for the BMC. You can set the addresses manually or use DHCP to set the addresses automatically.
3. In the LAN Configuration submenu, set the LAN Controller field to select which connection the BMC uses for the IPMI LAN interface.

To configure the BMC through the serial port:

1. Connect another system (such as a laptop) to the serial port on the server.
2. Configure your terminal session with the following settings:
   - Bits per second: 9600
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: None
3. Press Esc+(to toggle the BMC session to remote console redirection; press Esc+Q to toggle back to the command line protocol (CLP).
4. Start your terminal session.
5. Press Enter to bring up a prompt.
6. If the first prompt is for a password, press Enter again.
7. At the Login prompt, type your user name and press Enter. The default user name is admin.
8. At the Password prompt, type your password and press Enter. The default password is admin.

   The message CLP Session Initiated displays.
9. At the prompt, type cd map1/nic1 to navigate to the correct directory. The command line interface is SMASH-compliant.
10. Type show to display the current settings.
11. Modify the settings you want to change.

    NOTE: The set variables are case-sensitive.

    For example, by default, the BMC is set to use DHCP to get the IP address. To manually set the IP address, type

    set oemhp_dhcp_enable=FALSE to disable DHCP, then type set

    networkaddress=xxx.xxx.xxx.xxx to set the IP address you want.

    To revert to using DHCP to set the IP address, type set oemhp_dhcp_enable=TRUE to enable DHCP.The system takes a few seconds to set the new IP address.
12. Open a browser and enter the IP address that you set manually or that was set automatically using DHCP.
13. When prompted, enter the same user name and password you used in your terminal session.
14. Browse the server settings using the user interface that displays.

To enable console redirection via the Setup Utility:

1. In the Serial Port Configuration submenu under the IPMI Configuration submenu, set the Serial port Assignment field to System or BMC. See the "Serial Port Configuration submenu fields" section for more information.
2. In the Console Redirection submenu, set Remote Access to Enable. See the "Console Redirection submenu fields" section for more information.
3. Press F10 to Save and Exit.

NOTE: For more information please refer to the Lights-Out 100 User Guide available in the product manuals section of the product page on hp.com.

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